

FIG. 1A

SEQ. ID.NO.5.

Human VR3A+B- nucleotide sequence of the coding sequence (2616 bp).

ATGGCGGATTCCAGCGAAGGCCCGCGCGGGGCCGGGGAGGTGGCTGAG
 CTCCCCGGGATGAGAGTGGCACCCAGGTGGGGAGGCTTTCCCTCTC
 TCCCTGGCCAATCTGTTGAGGGGGAGGATGGCTCCCTTCGCCCTCACCG
 GCTGATGCCAGTCGCCCTGCTGCCAGGCGATGGCGACCAAATCTGCGC
 ATGAAGTTCCAGGGCGCTTCCGCAAGGGGTGCCAACCCATCGATCTG
 CTGGAGTCCACCCCTATATGAGTCCTCGGTGGTGCCTGGGCCAAGAAAGCA
 CCCATGGACTCACTGTTGACTACGGCACCTATCGTCAACCACCTCAGTGAC
 AACAAAGAGGTGGAGGAAGAAGATCATAGAGAAGCAGCCGAGAGCCCCAA
 GCCCCTGCCCTCAGCCGCCCATCCTCAAAGTCTTCAACCGGCCTATC
 CTCTTGACATCGTGTCCGGGCTCCACTGCTGACCTGGACGGCTGCTC
 CCATTCTGCTGACCCACAAGAAACGCCACTGATGAGGAGTTGAGAG
 CCATCTACGGGAAGACCTGCCTGCCAACGGCTTGCTGAACCTGAGCAAT
 GGCGCAACGACACCATCCCTGTGCTGCTGGACATCGCGAGCGCACCGGC
 AACATGCGGGAGTTCATTAACTGCCCTCCGTGACATCTACTATCGAGGT
 CAGACAGCCCTGCACATGCCATTGAGCGTCGCTGCAAACACTACGTGGAA
 CTTCTCGTGGCCCAGGGAGCTGATGTCCACGCCAACGGCCGTGGCTTC
 TTCCAGCCAAGGATGAGGGGGCTACTTCTACTTGGGAGCTGCCCTG
 TCGCTGGCTGCCTGCACCAACCAGCCCCACATTGTCAACTACGTGACGGAG
 AACCCCCACAAGAAGCGGACATGCCGCCAGGACTCGCGAGGCAACACA
 GTGCTGCATGCCATTGCTGACAAACACCGTGAGAACACCAAG
 TTTGTTACCAAGATGTACGACCTGCTGCTCAAGTGTGCCCGCCTTTC
 CCCGACAGCAACCTGGAGGCCGTGCTCAACAACGACGCCCTCGCCCTC
 ATGATGGCTGCCAAGACGGCAAGATTGGATCTTCAGCACATCATCCGG
 CGGGAGGTGACGGATGAGGACACACGGCACCTGCCCCGAAGTTCAAGGAC
 TGGGCCTATGGCCAGTGTATTCCCTCGCTTATGACCTCTCCCTGGAC
 ACGTGTGGGAAGAGGCCCTCCGTGCTGGAGATCCTGGTGTACAACAGCAAG
 ATTGAGAACGCCACGAGATGCTGGCTGTGGAGGCCATCAATGAACGTGCTG
 CGGGACAAGTGGCGCAAGTTGGGGCCGTCTCCTCTACATCAACGTGGTC
 TCCTACCTGTGTGCCATTGTCATCTCACTCACCCTACTACCAGCCG
 CTGGAGGGCACACCGCCGTACCCCTACCGCACCGTGACTACCTGCGG
 CTGGCTGGCGAGGTCAATTACGCTCTCACTGGGTCTGTTCTCATCACC
 AACATCAAAGACTTGTCAATGAAGAAATGCCCTGGAGTGAATTCTCTTC
 ATTGATGGCTCCTCCAGCTGCTACTTCATCTACTCTGTCCTGGTGATC
 GTCTCAGCAGCCCTACCTGGCAGGGATCGAGGCCACCTGGCGTGTGATG

FIG. 1B

GTCTTGCCTGGCCTGGATGAATGCCCTTACTCACCCGTGG
CTGAAGCTGACGGGGACCTATAGCATCATGATCCAGAAGATTCTCTTCAAG
GACCTTTCCGATTCCCTGCTCGTCTACTTGCTCTCATGATCGGCTACGCT
TCAGCCCTGGTCTCCCTGAACCCGTGTGCCAACATGAAGGTGTGCAAT
GAGGACCAGACCAACTGCACAGTGCCCACTTACCCCTCGTGCCGTGACAGC
GAGACCTTCAGCACCTCCTGGACCTGTTAAGCTGACCATCGGCATG
GGCGACCTGGAGATGCTGAGCAGCACCAAGTACCCCTGGTCTTCATCATC
CTGCTGGTACACTACATCATCCTCACCTTGTGCTGCTCCTAACATGCTC
ATTGCCCTCATGGCGAGACAGTGGGCCAGGTCTCCAAGGAGAGCAAGCAC
ATCTGGAAGCTGCAGTGGGCCACCACCATCCTGGACATTGAGCGCTCCTTC
CCCGTATTCCCTGAGGAAGGCCTCCGCTCTGGGAGATGGTCACCGTGGC
AAGAGCTCGGACGGCACTCCTGACCGCAGGTGGTCTCAGGGTGGATGAG
GTGAACTGGTCTCACTGGAACCAGAACCTGGGCATCATCAACGAGGACCCG
GGCAAGAACATGAGACCTACCAAGTATTATGGCTCTCGCATACCGTGGGCC
CTCCGCAGGGATCGCTGGTCCTCGGTGGTACCCCGCGTGGTGGAACTGAAC
AAGAACTCGAACCCGGACGAGGTGGTGCCTCTGGACAGCATGGGAAAC
CCCCGCTGCGATGCCACCAGCAGGGTTACCCCGCAAGTGGAGGACTGAT
GACGCCCGCTCTAG

FIG. 2A

SEQ. ID. NO. 6.

The nucleotide sequence of human VR3A+B- is shown including 337 bp 5' UT and 547 bp 3'UT.

CAATTGGGATTAAACCCAGGGACTATCCAGCCCCAAAGCCCTTCCCACCAAC
 ACCAGGTGGCCTGTCCTGGGCCAGCTCTGCACACAGGGCCTGGTGCCTGGCTC
 GGGTGCTTGGGAAGTGGCAGGGCAGAGGTGGGCCCTGTGGCTGTTCTGGCTC
 AGCTTCTAAAACAAGAGCCTCTGCTGGGGCAGAGGGCCGTGAACCCCTGA
 AATGTTAGGCAGATAACCTGTGGAGCTTGTGGATGCTAAGAACCGC
 TTGAGGATTAAAGCTTGCCACTTGCTCCGGAGCAAGGGCAGAGGCTGAG
 CAGTGCAGACGGCCTGGGCAGGCATGGCGGATTCCAGCGAAGGCCCGC
 GCGGGGCCGGGGAGGTGGCTGAGCTCCCCGGGGATGAGAGTGGCACCCAG
 GTGGGGAGGCTTTCCCTCTCCTCCCTGGCAATCTGTTGAGGGGGAGGA
 TGGCTCCCTTTCGCCCTCACCGCCTGATGCCAGTCGCCCTGCTGGCCAGGC
 GATGGGCGACCAAATCTGCGCATGAAGTTCCAGGGCGCTTCCGCAAGGGGG
 TGCCCAACCCCATCGATCTGCTGGAGTCCACCCATATGAGTCCTCGGTGGT
 GCCTGGGCCAAGAAAGCACCCATGGACTCACTGTTGACTACGGCACCTAT
 CGTCACCACTCCAGTACAACAAGAGGTGGAGGAAGAAGATCATAGAGAAGC
 AGCCGCAGAGCCCCAAAGCCCCTGCCCTCAGCCGCCCATCCTCAAAGT
 CTTCAACCGGCCTATCCTCTTGACATCGTGTCCCGGGCTCCACTGCTGAC
 CTGGACGGGCTGCTCCATTCTGCTGACCCACAAGAAACGCCTAACTGATG
 AGGAGTTCGAGAGCCATCTACGGGAAGACCTGCCCTGCCAAGGCCTTGCT
 GAACCTGAGCAATGGCCGAAACGACACCATCCCTGTGCTGGACATCGCG
 GAGCGACCGGCAACATGCGGGAGTTCATTAACTGCCCTCCGTGACATCT
 ACTATCGAGGTCAAGACAGCCCTGCACATGCCATTGAGCGTCGCTGCAAACA
 CTACGTGGAACCTCTCGTGGCCAGGGAGCTGATGTCCACGCCAGGCCGT
 GGGCGCTTCTCCAGCCAAGGATGAGGGGGCTACTTCTACTTTGGGAGC
 TGCCCTGTCGCTGGCTGCACCAACCAGCCCCACATTGTCACACTACCT
 GACGGAGAACCCCCACAAGAAGGCGGACATGCCGCCAGGACTCGCGAGGC
 AACACAGTGCATGCGCTGGCCATTGCTGACAAACACCCGTGAGAACAA
 CCAAGTTGTTACCAAGATGTACGACCTGCTGCTCAAGTGTGCCCAGCCT
 CTTCCCCGACAGCAACCTGGAGGCCGTGCTAACAAACGACGGCCTCGGCC
 CTCATGATGGCTGCCAAGACGGCAAGATTGGATCTTCAGCACATCATCC
 GGCAGGGAGGTGACGGATGAGGACACACGGCACCTGTCCCGCAAGTTCAAGGA
 CTGGGCCTATGGCCAGTGTATTCCCTCGCTTATGACCTCTCCCTGGAC
 ACGTGTGGGAAGAGGCCTCCGTGGAGATCCTGGTGTACAACAGCAAGA
 TTGAGAACGCCACGAGATGCTGGCTGTGGAGGCCATCAATGAACGTGCG
 GGACAAGTGGCGCAAGTTGGGCCGTCTCCTCTACATCAACGTGGTCTCC
 TACCTGTGTGCCATGGTCATCTCACTCTCACCGCCTACTACCAGCCGCTGG
 AGGGCACACCGCCGTACCCATTACCGCACACGGTGGACTACCTGCGGCTGGC

FIG. 2B

TGGCGAGGTCATTACGCTCTTCACTGGGGCCTGTTCTTCATCACCAACATC
 AAAGACTTGTTCATGAAGAAATGCCCTGGAGTGAATTCTCTCTTCATTGATG
 GCTCCTTCCAGCTGCTACTTCATCTACTCTGTCCCTGGTGAATCGTCTCAGC
 AGCCCTCTACCTGGCAGGGATCGAGGCCTACCTGGCGTGAAGCTGA
 CTGGTCTGGGCTGGATGAATGCCCTTACTTCACCCGTGGGCTGAAGCTGA
 CGGGGACCTATAGCATCATGATCCAGAAGATTCTCTTCAAGGACCTTCCG
 ATTCCCTGCTCGTCACTTGCTCTTCATGATCGGCTACGCTTCAGCCCTGGTC
 TCCCTCCTGAACCCGTGTGCCAACATGAAGGTGTGCAATGAGGACAGACCA
 ACTGCACAGTGCCACTTACCCCTCGTGCCGTGACAGCGAGACCTTCAGCAC
 CTTCCCTGGACCTGTTAAGCTGACCATGGCATGGCGACCTGGAGATG
 CTGAGCAGCACCAAGTACCCCGTGGTCTTCATCATCCTGCTGGTGA
 TCATCCTCACCTTGTGCTGCTCCTAACATGCTATTGCCCTCATGGCGA
 GACAGTGGGCCAGGTCTCCAAGGAGAGCAAGCACATCTGGAAGCTGCAGTGG
 GCCACCACCATCCTGGACATTGAGCGCTCCTCCCCGTATTCTGAGGAAGG
 CCTTCCGCTCTGGGAGATGGTCAACGTGGCAAGAGCTCGGACGGCACTCC
 TGACCGCAGGTGGTGCTTCAGGGTGGATGAGGTGA
 ACTGGTCTCACTGGAAC
 CAGAACTTGGGCATCATCAACGAGGACCCGGCAAGAATGAGACCTACCAAGT
 ATTATGGCTCTCGCATTACCGTGGGCCCTCCGCAGGGATCGCTGGTCTC
 GGTGGTACCCCGGTGGAACTGAACAAGAACACTCGAACCCGGACGAGGTG
 GTGGTGCCTCTGGACAGCATGGGAACCCCCGCTGCGATGGCCACCAGCAGG
 GTTACCCCGCAAGTGGAGGACTGATGACGCCCCCTAGGGACTGCAGCC
 CAGCCCCAGCTCTGCCCACCTCATTCTAGTCCAGCCGATTCA
 GCCTCTGGGTGTCCCCACACCCCTGCTTGGCCCCAGAGGGGAGGGACC
 AGTGGAGGTGCCAGGGAGGCCCCAGGACCCCTGTGGTCCCTGGCTCTGCCTC
 CCCACCCCTGGGTGGGGCTCCGGCACCTGTCTTGCTCCTATGGAGTCAC
 ATAAGCCAACGCCAGAGCCCCCTCCACCTCAGGCCCCAGCCCCCTGCCTCTCCA
 TTATTATTGCTCTGCTCAGGAAGCGACGTGACCCCTGCCAGCTGGA
 ACCTGGCAGAGGCCTTAGGACCCGTTCCAAGTGCAGTGCCTGGCCAAGCCC
 CAGCCTCAGCCTGCGCCTGAGCTGCATGCGCCACCATTGGCAGCGTGGC
 AGCTTGCAAGGGCTGGGCCCTGGCGTGGGGCCATGCCTCTGTGTGTT
 CTGTAGTGTCTGGATTGCCCCGTGCTCAATAATGTTATTGACGGT
 GGAAAAAAAAAAAAAA

FIG. 3

SEQ. ID. NO. 7.

Coding sequence for human VR3A+B- (871 amino acids)

MADSSEGPRAGPGEVAELPGDESGTPGGEAFPLSSLANLFEGEDGSLSPSP
ADASRPAGPGDGRPRLRMKFQGAFRKGVPNPIDLLESTLYESSVVPGPKKA
PMDSLFDYGTYRHSSDNKRWRKKIIEKQPQSPKAPAPQPPPILKVFNRPI
LFDIVSRGSTADLDGLLPFLLTHKKRLTDEEFREPSTGKTCLPKALLNLSN
GRNDTIPVLLDIAERTGNMREFINSPFRDIYYRGQTALHIAIERRCKHYVE
LLVAQGADVHAQARGRFFQPKDEGGYFYFGELPLSLAACTNQPHIVNLYTE
NPHKKADMRRQDSRGNTVLHALVAIADNTRENTKFVTKMYDLLLLKCARLF
PDSNLEAVLNNDGLSPLMMMAAKTGKIGIFQHIIRREVTDEDTRHLSRKFKD
WAYGPVYSSLYDLSSLTCGEEASVLEILVYNSKIEENRHEMLAVEPINELL
RDKWRKFGAVSFYINVSYLCAMVIFTLTAYYQPLEGTPPYRTVDYLR
LAGEVITLFTGVLFITNIKDLFMKKCPGVNSLFIDGSFQLLYFIYSVLVI
VSAALYLAGIEAYLAVMVFALVLGWMNALYFTRGLKLTGTYSIMIQKILFK
DLFRFLLVYLLFMIGYASALVSLNPACANMKVCNEDQTNCTVPTYPSCRDS
ETFSTFLDLFKLTIGMDLEMLSSTKYPVVFILLVTYIILTFVLLLNML
IALMGETVGQVSKESKHIWKLQWATTILDIERSPVFLRKAFRSGEMVTVG
KSSDGTPDRRWCFRVDEVNWSHWNQNLGIINEDPGKNETYQYYGFSHTVGR
LRRDRWSSVPRVVELNKNSNPDEVVPLDSMGNPRCDGHQQGYPRKWRTDDAPL

FIG. 4A

SEQ. ID. NO. 8.

Human VR3A-B- nucleotide sequence of the coding sequence (2436 bp).

ATGGCGGATTCCAGCGAAGGCCCCCGCGCGGGGCCGGGAGGTGGCTGAG
 CTCCCCGGGGATGAGAGTGGCACCCCAGGTGGGAGGCTTTCTCTCTCC
 TCCCTGGCCAATCTGTTGAGGGGGAGGATGGCTCCCTTCGCCCTCACCG
 GCTGATGCCAGTCGCCCTGCTGGCCCAGCGATGGCGACCAAATCTGCGC
 ATGAAGTTCCAGGGCGCCTTCCGCAAGGGGTGCCAACCCATCGATCTG
 CTGGAGTCCACCCCTATATGAGTCCTCGGTGGTGCCTGGGCCAAGAAAGCA
 CCCATGGACTCACTGTTGACTACGGCACCTATCGTCACCACTCCAGTGAC
 AACAAAGAGGTGGAGGAAGAAGATCATAGAGAAGCAGCCGAGAGCCCCAA
 GCCCTGCCCTCAGCCGCCCATCCTCAAAGTCTCAACCGGCCTATC
 CTCTTGACATCGTGTCCCGGGCTCCACTGCTGACCTGGACGGCTGCTC
 CCATTCTGCTGACCCACAAGAAACGCCTAACGTGATGAGGAGTTCGAGAG
 CCATCTACGGGAAGACCTGCCTGCCAAGGCCTTGCTGAACCTGAGCAAT
 GGCGCAACGACACCATTCTGTGCTGGACATCGGGAGCGCACCGGC
 AACATGCGGGAGTTCATTAACTCGCCCTCCGTGACATCTACTATCGAGGT
 CAGACAGCCCTGCACATGCCATTGAGCGTCGCTGCAAACACTACGTGGAA
 CTTCTCGTGGCCAGGGAGCTGATGTCCACGCCAGGCCGTGGCGCTTC
 TTCCAGCCAAGGATGAGGGGGCTACTTCTACTTGGGAGCTGCCCTG
 TCGCTGGCTGCCATGACCAACCAGCCCCACATTGTCAACTACCTGACGGAG
 AACCCCCACAAGAAGCGGACATGCCGCCAGGACTCGCGAGGCAACACA
 GTGCTGCATGCGCTGGTGGCATTGCTGACAACACCCGTGAGAACACCAAG
 TTTGTTACCAAGATGTACGACCTGCTGCTCAAGTGTGCCCGCTCTTC
 CCCGACAGCAACCTGGAGGCCGTGCTCAACAAACGACGCCCTCGCCCCCTC
 ATGATGGCTGCCAAGACGGCAAGATTGAGAACGCCACGAGATGCTGGCT
 GTGGAGCCCATCAATGAACTGCTGCCAGAAGTGGCGCAAGTTCGGGCC
 GTCTCCTCTACATCACGTGGTCTCCTACCTGTGTGCCATGGTCATCTTC
 ACTCTCACCGCTACTACCAGCCGCTGGAGGGCACACCGCCGTACCTTAC
 CGCACCAAGGGTGGACTACCTGCCGTGGCTGGCGAGGTCAATTACGCTCTC
 ACTGGGGTCTGTTCTCATCACCAACATCAAAGACTTGTTCATGAAGAAA
 TGCCCTGGAGTGAATTCTCTCTCATGTGCTGCCCTCCAGCTGCTCTAC
 TTGATCTACTCTGCTGCCGTGATGGTCTTGGCCCTGGCCTGGGCTGGATG
 ATCGAGGCCCTACCTGGCCGTGATGGTCTTGGCCCTGGCCTGGGCTGGATG
 AATGCCCTTACTCACCCGTGGGCTGAAGCTGACGGGACCTATAGCATT

FIG. 4B

ATGATCCAGAAGATTCTCTTCAAGGACCTTTCCGATTCCCTGCTCGTCTAC
TTGCTCTTCAATGATCGGCTACGCTTCAGCCCTGGTCTCCCTCCTGAACCCG
TGTGCCAACATGAAGGTGTGCAATGAGGACCAACTGCACAGTGCAC
ACTTACCCCTCGTGCCGTGACAGCGAGACCTTCAGCACCTTCCTGGAC
CTGTTAAGCTGACCATCGGCATGGCGACCTGGAGATGCTGAGCAGCACC
AAGTACCCCGTGGTCTTCATCATCCTGCTGGTGAACCTACATCATCCTCACC
TTTGTGCTGCTCCTCAACATGCTCATTGCCCTCATGGCGAGACAGTGGC
CAGGTCTCCAAGGAGAGCAAGCACATCTGGAAGCTGCAGTGGGCCACCACC
ATCCTGGACATTGAGCGCTCCTCCCGTATTCTGAGGAAGGCCTCCGC
TCTGGGGAGATGGTCACCGTGGCAAGAGCTGGACGGCACTCCTGACCGC
AGGTGGTGCTTCAGGGTGGATGAGGTGAACCTGGTCTCACTGGAACCAGAAC
TTGGGCATCATCAACGAGGACCCGGCAAGAATGAGACCTACCAGTATTAT
GGCTTCTCGCATACCGTGGGCCCTCCGCAGGGATCGCTGGTCCCTCGGTG
GTACCCCGCGTGGTGGAACTGAACAAGAACTCGAACCCGGACGAGGTGGTG
GTGCCTCTGGACAGCATGGGAACCCCGCTGCGATGCCACCAGCAGGGT
TACCCCCGCAAGTGGAGGACTGATGACGCCCGCTCTAG

FIG. 5

SEQ. ID. NO. 9.

Coding sequence for human VR3A-B- (811 amino acids)

MADSSEGPRAGPGEVAELPGDESGTPGGEAFPLSSLANLFEGEDGSLSPSP
ADASRPAGPGDGRPNLRMKFQGAFRKGVPNPIDLLESTLYESSVVPGPKKA
PMDSLFDYGTYRHSSDNKRWRKKIIEKQPQSPKAPAPQPPPILKVFNRPI
LFDIVSRGSTADLDGLLPFLLTHKKRLTDEEFREPSTGKTCLPKALLNSN
GRNDTIPVLLDIAERTGNMREFINSFRDIYYRGQTALHIAIERRCKHYVE
LLVAQGADVHAQARGRFFQPKDEGGYFYFGELPLSLAACTNQPHIVNYLTE
NPHKKADMRRQDSRGNTVLHALVIAADNTRENTKFVTKMYDLLLKCARLF
PDSNLEAVLNNDGLSPLMMAAKTGKIERHMLAVEPINELLRDKWRKFGA
VSFYINVVSYLCAMVIFTLTAYYQPLEGTPPYPYRTTVDYLRLAGEVITLF
TGVLFFITNIKDLFMKKCPGVNSLFIDGSFQLLYFIYSVLVIVSAALYLAG
IEAYLAVMVFALVLGWMNALYFTRGLKLTGTYSIMIQKILFKDLFRFLVY
LLFMIGYASALVSLLNPCANMKVCNEDQTNCTVPTYPSCRDSETFSTFLLD
LFKLTIGMDLEMLSSTKYPVVFIIILVTVIILTFVLLLNMLIALMGETVG
QVSKESKHIWKLQWATTILDIERSFVFLRKAFRSGEMVTVGKSSDGTPDR
RWCFRVDEVNWSHWNQNLGIINEDPGKNETYQYYGFSHTVGRRLRRDRWSSV
VPRVVELNKNNSNPDEVVVPPLDSMGNPRCDGHQQGYPRKWRTDDAPL

FIG. 6

SEQ. ID. NO. 10.

Human VR3A+B+ nucleotide sequence of the coding sequence (2229 bp).

ATGGCGGATTCAGCGAAGGCCCCCGCGCGGGGCGGGAGGTGGCTGAGCT
 CCCCAGGGATGAGAGTGGCACCCAGGTGGGAGGCTTCTCTCTCCCTCCC
 TGGCCAATCTGTTGAGGGGGAGGATGGCTCCCTTCGCCCTCACCGGCTGAT
 GCCAGTCGCCCTGCTGGCCAGGCATGGCGACCAAATCTGCGCATGAAAGTT
 CCAGGGCGCCTTCCGCAAGGGGGTGCCTACCCATCGATCTGCTGGAGTCCA
 CCCTATATGAGTCCTCGGTGGCTGGGCCAAGAAAGCACCCATGGACTCA
 CTGTTGACTACGGCACCTATCGTCACCACCCAGTGACAACAAGAGGTGGAG
 GAAGAAGATCATAGAGAAGCAGCCGAGAGCCCCAAAGCCCTGCCCTCAGC
 CGCCCCCATCCTCAAAGTCTCAACCCGCTATCCTCTTGACATCGTGTCC
 CGGGGCTCCACTGCTGACCTGACGGCTGCTCCATTCTGCTGACCCACAA
 GAAACGCCTAACTGATGAGGAGTTGAGAGCCATCTACGGGAAGACCTGCC
 TGCCCAAGGCCTTGCTGAACCTGAGCAATGGCGAACGACACCATCCCTGTG
 CTGCTGGACATCGCGAGCGCACCGCAACATGAGGGAGTTCAACTCGCC
 CTTCCGTGACATCTACTATCGAGGTCAAGACAGCCCTGCACATGCCATTGAGC
 GTCGCTGCAAACACTACGTGGAACCTCTCGTGGCCAGGGAGCTGATGTCCAC
 GCCCAGGCCGTGGCGCTTCTCCAGCCCAAGGGATGAGGGGGCTACTCTA
 CTTTGGGAGCTGCCCTGTCGCTGGCTGCACCAACCAGCCCCACATTG
 TCAACTACCTGACGGAGAACCCCCACAAGAAGGCAGCATGCGCGCCAGGAC
 TCGCGAGGCAACACAGTGCATGCGCTGGTGGCCATTGCTGACAACACCCG
 TGAGAACACCAAGTTGTTACCAAGATGTACGACCTGCTGCTCAAGTGTG
 CCCGCCTTCCCCGACAGCAACCTGGAGGCCGTGCTCAACAACGACGCCCTC
 TCGCCCTCATGATGGCTGCCAAGACGGCAAGATTGGATCTTCAGCACAT
 CATCCGGGGAGGTGACGGATGAGGACACACGGCACCTGTCCCGCAAGTTCA
 AGGACTGGCCTATGGCCAGTGTATTCTCGCTTATGACCTCCCTCCCTG
 GACACGTGTGGGAAGAGGCCCTCGTGTGGAGATCCTGGTGTACAACAGCAA
 GATTGAGAACGCCACGAGATGCTGGCTGTGGAGCCATCAATGAACGTGGCTC
 GGGACAAGTGGCGCAAGTTGGGGCGTCTCCTCTACATCAACGTGGCTC
 TACCTGTGTGCCATGGTCATCTCACTCTCACCGCCTACTACCAGCCGCTGGA
 GGGCACACCGCCGTACCCCTACCGCACCGTGGACTACCTGCGGCTGGCTG
 GCGAGGTCAATTACGCTCTCACTGGGCTCTGTTCTCACCAACATCAA
 GACTTGTTCATGAAGAAATGCCCTGGAGTGAATTCTCTTCAATTGATGGCTC
 CTTCCAGCTGCTCTACTTCATCTACTCTGTCTGGTGTACGTCTCAGCAGCCC
 TCTACCTGGCAGGGATCGAGGCCTACCTGGCGTGTGGAGCTTGGCTTCTC
 CTGGGCTGGATGAATGCCCTTACTTCACCCGTGGCTGAAGCTGACGGGAC
 CTATAGCATCATGATCCAGAAGATTCTCTCAAGGACCTTCCGATTCTGC
 TCGTCTACTTGCTCTCATGATCGGCTACGCTCAGCCCTGGTCTCCCTCCTG
 AACCCGTGTGCCAACATGAAGGTGTGCAATGAGGACCAACTGCACAGT
 GCCCACTTACCCCTCGTGCCTGACAGCGAGACCTCAGCACCTCCTCCTGG
 ACCTGTTAAGCTGACCACCGCATGGCGACCTGGAGATGCTGAGCAGCACC
 AAGTACCCCGTGGTCTTCATCATCCTGCTGGTGTGACCTACATCATCCTCACCT
 TGTGCTGCTCCTCAACATGCTCATTGCCCTCATGGCGAGACAGTGGGCCAGG
 TCTCCAAGGAGAGCAAGCACATCTGGAAGCTGCAGAGCGCAGGCGCAGGCTGTGA

FIG. 7A

SEQ. ID. NO. 11.

The nucleotide sequence of human VR3A+B+ is shown including 836 bp 5' UT and 994 bp 3'UT.

TGTGCAGGCCAGGGAGGGCTTCCAGAGGAGCCCAGTTGAGCTGGAACACCA
 GTGGGGAGGGAGTTGACCAGCAAAGGTGCAGGGAGGGATCAGCACTTTGCACT
 GGGGAGCAGAGTTGTGCACTGGGAAGTCAACTCAAGTATTGGAGCCTCAG
 TTTCCCTGTTCTGTAAAATGGGTTCATCATGACAGTGTGATGAGGAAAAGG
 ACTGCCGGCCTACACAGCAAGTCCACATGGATTTCTGAGCCCCTCCTGTGC
 CTGAAGCCCACGGTTAATGGGTTCTGCCTTAGCAGGTGCTTACACGTGCCAG
 GCACTGCACTGCACTGCCACTGGACTGCATGTTCTGTCCATGAGGCTTGGA
 TATCCCCATCTTACAGATCAGGAAGCTGAGGCTATGAAATGTCGACTTGCTC
 AATGTCATGGAATGACTAAGTGTGGAGCCTGGATTTGAACTTGCTCTCTGG
 GGCTCCAAAGCTGGCTTCTTGGTCAGCAGTAGGGTCTGGGATCCAAGTATG
 GGGTCCCAGCTTGACCTGAAGTCCACCCCTTTCAGCTAATGCCAAGGTA
 GTTGGACCTGGGGCCAATTGTGTTCCAGGTTCGTGAAAGAGCTCCTGTTG
 CAGTTCCCGCCTGAGGCTTGGCGGCCAACACATCTGGGAGTGGCCTCCCTG
 TGCCCCCTGTCATTACAACGGTGGCTTGAAGCAGCTGGCAGCAGTGTGCTT
 GTCCACGTGGAAGGGGGCTTCCTGGAGCCCCCGCCCTGGCCGGGTTCTGCC
 TGACTCCCCCTTCATTCCCTTGCAAGGCTGAGCAGTGCAGACGGGCTGGG
 AGGCATGGCGGATTCCAGCGAACGGCCCCCGCGCGGGGCCGGGAGGTGGCT
 GAGCTCCCCGGGATGAGAGTGGCACCCCAGGTGGGAGGGCTTTCCCTCT
 CCTCCCTGGCCAATCTGTTGAGGGGAGGATGGCTCCCTTCGCCCTCACC
 GGCTGATGCCAGTCGCCCTGCTGGCCAGGCGATGGCGACCAAATCTGCGC
 ATGAAGTTCCAGGGGCCCTCCGCAAGGGGGTGCCAACCCATCGATCTGC
 TGGAGTCCACCCCTATATGAGTCCTCGGTGGTGCCTGGGCCAACAGAAC
 CATGGACTCACTGTTGACTACGGCACCTATCGTCAACCCTCCAGTGACAAC
 AAGAGGTGGAGGAAGAAGATCATAGAGAACAGCGCCAGAGCCCCAACAGCC
 CTGCCCTCAGCCGCCCATCCTCAAAGTCTCAACC GGCTATCCTCT
 TGACATCGTGTCCCAGGGCTCCACTGCTGACCTGGACGGCTGCTCCCATT
 TTGCTGACCCACAAGAACGCCACTGATGAGGAGTTCTGAGAGGCCATCTA
 CGGGGAAGACCTGCTGCCAACGGCCTGCTGAACCTGAGCAATGGCGCAA
 CGACACCATCCCTGTGCTGGACATCGCGAGCGCACCGAACATGAGG
 GAGTTCATTAACTGCCCTCCGTGACATCTACTATCGAGGTAGACAGGCC
 TGCACATGCCATTGAGCGTGTGCAAACACTACGTGGAACTCTCGTGGC
 CCAGGGAGCTGATGTCCACGCCAACGGCCGTGGCGCTTCTCCAGGCCAAC
 GATGAGGGGGCTACTTCTACTTTGGGGAGCTGCCCCCTGTCGCTGGCTGCCT
 GCACCAACCAGCCCCACATTGTCAACTACCTGACGGAGAACCCCCAACAGAA
 GGCAGACATGCCGCCAGGACTCGCGAGGCAACACAGTGCTGCGATGCGCTG
 GTGGCCATTGCTGACAACACCCGTGAGAAGAACACCAAGTTGTTACCAAGATGT
 ACGACCTGCTGCTGCTCAAGTGTGCCCGCTCTCCCCGACAGCAACCTGGA
 GGCGTGTCAACAAACGACGCCCTCGCCCCCTCATGATGGCTGCCAACAG
 GGCAAGATTGGGATCTTCAGCACATCATCCGGCGGGAGGTGACGGATGAGG
 ACACACGGCACCTGTCCCGCAAGTCAAGGACTGGGCCTATGGGCCAGTGTA
 TTCCTCGCTTATGACCTCTCCCTGGACACGTGTGGGGAAAGAGGCCCTCC
 GTGCTGGAGATCCTGGGTACAACAGCAAGATGAGAACGCCACGAGATGC
 TGGCTGTGGAGGCCATCAATGAACTGCTGCCAGTGGCGCAAGTTCGG

FIG. 7B

GGCGGTCTCCTCTACATCAACGTGGTCTCCTACCTGTGTGCCATGGTCAT
 CTTCACTCTCACCGCCTACTACCAGCCGCTGGAGGGCACACCGCCGTACCC
 TTACCGCACCACGGTGGACTACCTGCGGCTGGCTGGCAGGGTATTACGCT
 CTTCACTGGGGTCCTGTTCTTCACCAACATCAAAGACTTGTTCATGAA
 GAAATGCCCTGGAGTGAATTCTCTTCATTGATGGCTCCTCCAGCTGCT
 CTACTTCATCTACTCTGTCTGGTGTACGCTCAGCAGCCCTACCTGGC
 AGGGATCGAGGCCTACCTGGCGTGATGGTCTTGCCCTGGTCTGGGCTG
 GATGAATGCCCTTACTTCACCCGTGGGCTGAAGCTGACGGGACCTATAG
 CATCATGATCCAGAAGATTCTCTTCAGGACCTTCCGATTCTGCTCGT
 CTACTTGCTCTCATGATCGGCTACGCTTCAGCCCTGGTCTCCCTCGA
 CCCGTGCCAACATGAAGGTGTGCAATGAGGACCAGACCAACTGCACAGT
 GCCCACTTACCCCTCGTGCCGTGACAGCGAGACCTTCAGCACCTCCT
 GGACCTGTTAACGCTGACCATCGGCATGGCGACCTGGAGATGCTGAGCAG
 CACCAAGTACCCGTGGTCTTCATCATCCTGCTGGTGCACCTACATCATCCT
 CACCTTGCTGCTCCTCAACATGCTCATTGCCCTCATGGCGAGACAGT
 GGGCCAGGTCTCAAGGAGAGCAAGCACATCTGGAAGCTGCAGAGCGGAG
 GCGCAGGCTGTGAGGCTCACCGATGTCCCTCCTGACCCCTCCCTCCCGCAG
 TGGGCCACCACCATCCTGGACATTGAGCGCTCCTCCCCGTATTCCTGAGG
 AAGGCCTCCGCTCTGGGAGATGGTCACCGTGGCAAGAGCTCGGACGGC
 ACTCCTGACCGCAGGTGGTGCTTCAGGGTGGATGAGGTGAACGGTCTCAC
 TGGAACAGAACTTGGCATCATCAACGAGGACCCGGCAAGAATGAGACC
 TACCACTATTATGGCTCTCGCATACCGTGGCCCGCTCCGCAGGGATCGC
 TGGTCCTCGGTGGTACCCCGCGTGGTGGAACTGAACAAAGAACTCGAACCCG
 GACGAGGTGGTGGTGCCCTCTGGACAGCATGGGAACCCCGCTGCGATGGC
 CACCAAGCAGGGTTACCCCGCAAGTGGAGGGACTGATGACGCCCCGCTCTAG
 GGACTGCAGCCCAGCCCCAGCTCTGCCCCACTCATTTCTAGTCCAGCCG
 CATTTCAGCAGTGCCTCTGGGTGTCCCCCACACCCCTGCTTGGCCCCA
 GAGGGGAGGGACCAGTGGAGGTGCCAGGGAGGGCCCCAGGACCCCTGTGGTCC
 CCTGGCTCTGCCCTCCCCACCCCTGGGGTGGGGCTCCCCGGCCACCTGTCTTG
 CTCCTATGGAGTCACATAAGCCAACGCCAGAGCCCCCTCCACCTCAGGCCCC
 AGCCCCCTGCCCTCCATTATTATTTGCTCTGCTCTCAGGAAGCGACGTGA
 CCCCTGCCCGAGCTGGAACCTGGCAGAGGCCTTAGGACCCCGTTCCAAGTG
 CACTGCCCGGCCAAGCCCCAGCCTCAGCCTGCGCCTGAGCTGCATGCCCA
 CCATTGGCAGCGTGGCAGCTTGCAGGGCTGGGGCCCTCGCGTGG
 GGCCATGCCTCTGTGTGTTCTGTAGTGTCTGGGATTGCCGGTGTCAAT
 AAATGTTATTGACGGTGGAAAAAAAAAAAAAA

FIG. 8

SEQ.ID.NO.12.

Coding sequence for human VR3A+B+ (742 amino acids)

MADSSEGPRAGPGEVAELPGDESGTPGGEAFPLSSLANLFEGEDGSLSPS
PADASRPAGPGDGRPRLRMKFQGAFRKGVPNPIDLLESTLYESSVVPGPK
KAPMDSLFDYGYRHHSSDNKRWRKKIEKQPQSPKAPAPQPPPILKVFN
RPILFDIVSRGSTADLDGLLPFLLTHKKRLTDEEFREPSTGKTCLPKALL
NLSNGRNDTIPVLLDIAERTGNMREFINSPFRDIYYRGQTALHIAIERRC
KHYVELLVAQGADVHAQARGRFQPKDEGGYFYFGELPLSLAACTNQPHI
VNYLTENPHKKADMRRQDSRGNTVLHALVAIADNTRENTKFVTKMYDLLL
LKCARLFPDNSLEAVLNNDGLSPLMMAAKTGKIGIFQHIIRREVTDTR
HLSRKFKDWAYGPVYSSLYDLSSLTCGEEASVLEILVYNSKIENRHEML
AVEPINELLRDKWRKFGAVSFYINVVSYLCAMVIFTLTAYYQPLEGTPPY
PYRTTVDYLRLAGEVITLFTGVLFFFTNIKDLFMKKCPGVNSFIDGSFQ
LLYFIYSVLVIVSAALYLAGIEAYLAVMFALVLGWMNALYFTRGLKLTG
TYSIMIQKILFKDLFRFLLVYLLFMIGYASALVSLLNPCANMKVCNEDQT
NCTVPTYPSCRDSETFSTFLLDLFKLTIGMGDLEMLSSTKYPVVFIILLV
TYIILTFVLLNMLIALMGETVGQVSKEKHIWKLQSGRRRL

FIG. 9

	Water-injected controls	VR3 A+B-	VR3 A-B-	VR3 A+B+
Number of living oocytes	88	9	47	29
Number of dead oocytes	44	90	40	54
Percent Alive	67%	9% (* p<e-17)	54% (p = 0.99)	35% (* p = 5.4 e-6)

FIG. 10A

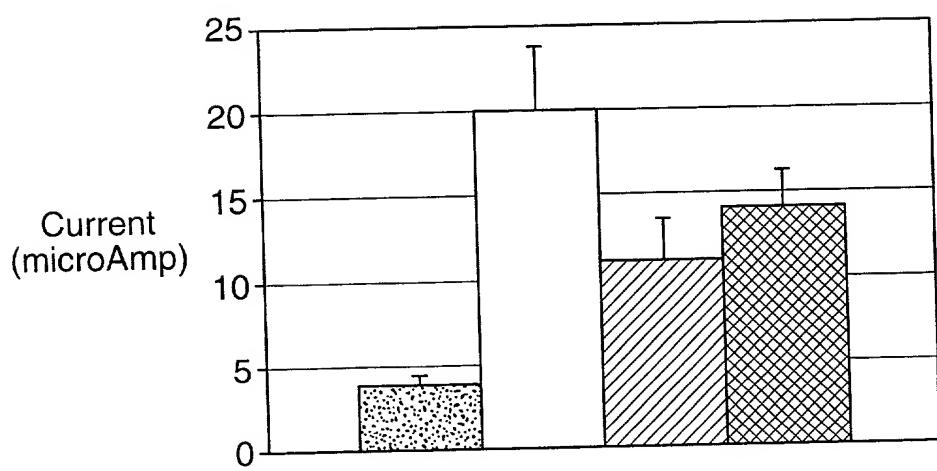


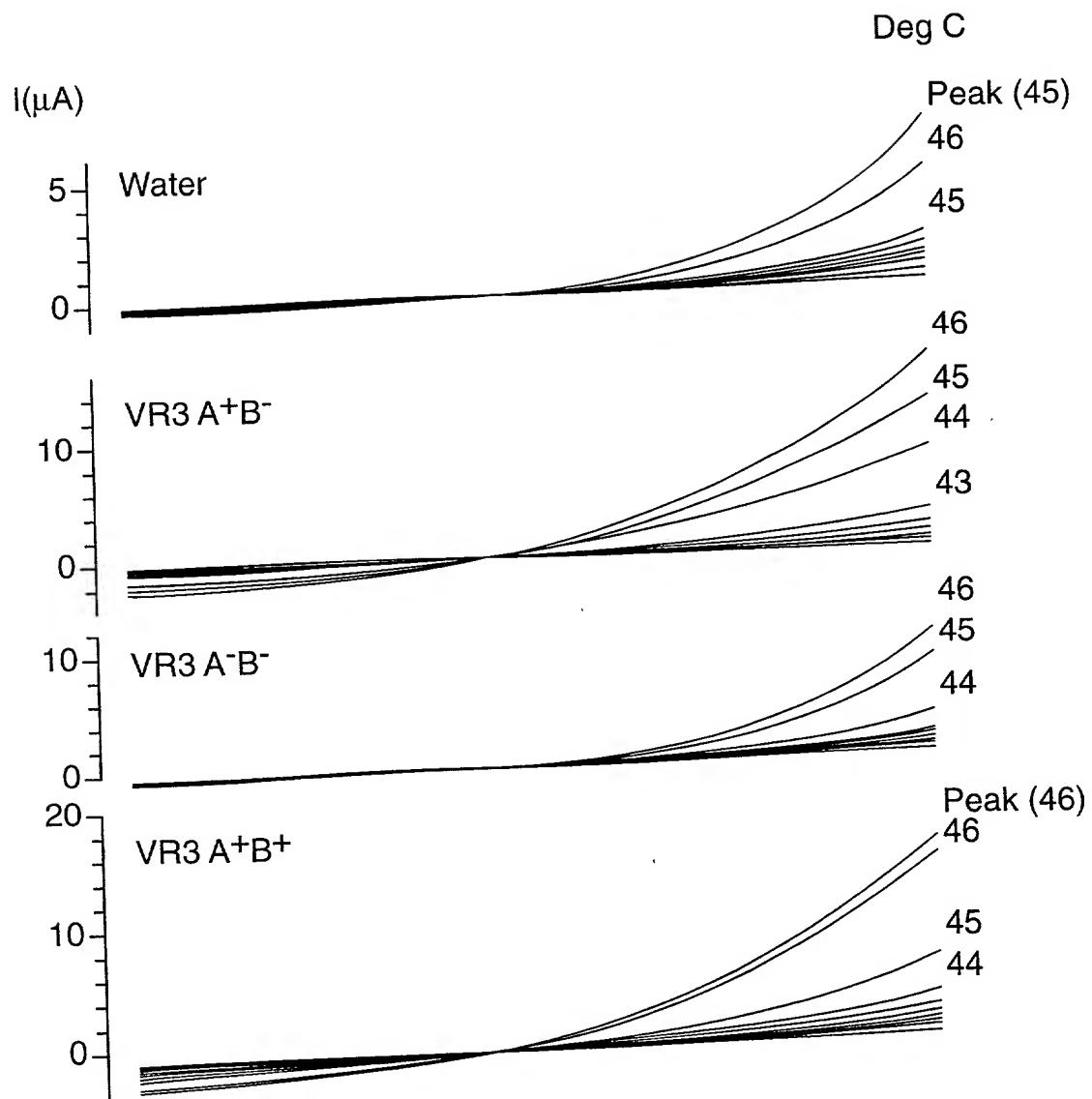
FIG. 10B

FIG. 11A
VRI and water

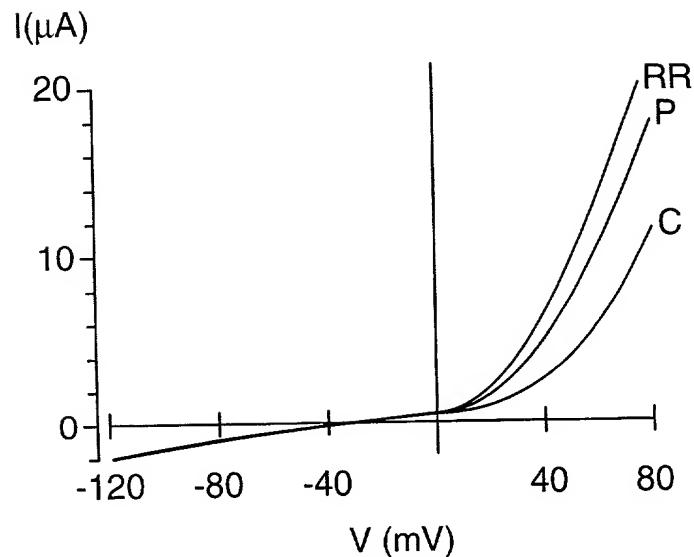


FIG. 11B
VRI and VR3 A^+B^-

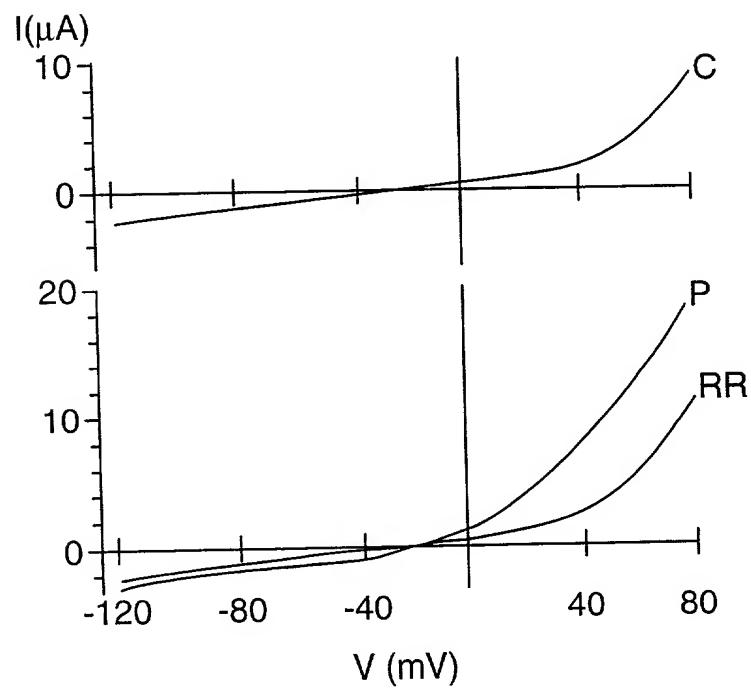


FIG. 12A

VR1 and water

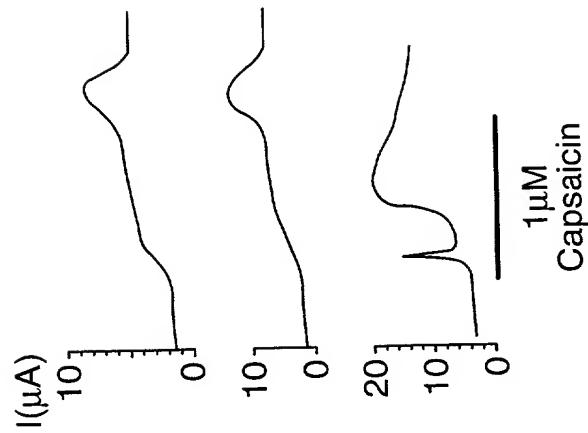
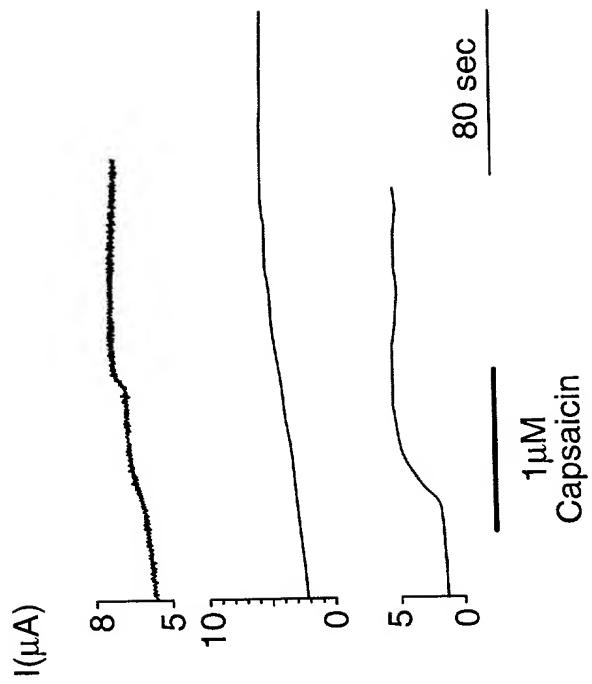
**FIG. 12B**VR1 and VR3 A⁺B⁻

FIG. 13

Tissue or cell type	hVR3 (mean intensity)	hVR1 (mean intensity)
Liver	900+/-50 (p<0.005)	55+/-3 (p<0.05)
Raji lymphoma cell line	255+/-20 (p<0.005)	NS
Spleen	196+/-19 (p<0.01)	NS
Lung	150+/-22 (p<0.01)	NS
DRG	129+/-21 (p<0.025)	90+/-3 (p<0.05)
Ovary	128+/-9 (p<0.0025)	69+/-2 (p<0.0005)
Placenta	120+/-7 (p<0.001)	NS
Trachea	106+/-7 (p<0.001)	54+/-4 (p<0.01)
Small intestine	105+/-3 (p<0.001)	62+/-5 (p<0.01)
Prostate*	72+/-5 (p<0.0025)	38+/-1 (p<0.0005)
Kidney	62+/-4 (p<0.05)	57+/-4 (p<0.005)
Spinal cord	57+/-2 (p<0.00025)	47+/-3 (p<0.005)

Values are the mean intensity of the labeled cRNA hybridizing to the cDNA microarray +/- S.E.M. The mean intensity for cRNAs from all tissues shown were significantly different (p value in the parentheses) from 75% of the control plant cDNA value. Data are averaged from 3-6 experiments. NS: not significantly different from plant gene control (see Luo et al., 1999 for more detailed methods). *Tissue from which the VR3 was cloned.